

PATENT
Atty. Dkt. No. WEAT/0275

IN THE CLAIMS:

Please amend the claims as follows:

1. (Previously Presented) A method of deriving data representative of a condition of a pipeline comprising:
 - generating an interaction between a pipeline pig and an inner diameter of a pipeline by passing the pipeline pig through the pipeline;
 - generating data representative of an acoustical characteristic of the pipeline from the interaction between the pipeline pig and the inner diameter of the pipeline;
 - selecting a pig guide diameter, a seal diameter and a seal thickness to generate, from the interaction between the pipeline pig and the inner diameter of the pipeline, vibration frequency data characteristic of an internal condition of the pipeline; and
 - analyzing the data to determine the condition of the pipeline.
2. (Original) The method of claim 1, wherein the acoustical characteristic is a vibration frequency.
3. (Original) The method of claim 1, wherein the acoustical characteristic is a vibration signal amplitude.
4. (Cancelled).
5. (Currently Amended) The method of claim 1, wherein generating the interaction comprises controlling a speed of the pipeline pig to within a suitable range to generate vibration frequency data characteristic of the internal condition of the pipeline.
6. (Original) The method of claim 1, further comprising, collecting data for use in determining a speed of travel of the pipeline pig along the pipeline.

7. (Original) The method of claim 1, further comprising, collecting data for use in determining a position of the pipeline pig along the pipeline.
8. (Original) The method of claim 1, wherein analyzing the data to determine a condition of the pipeline comprises filtering the data.
9. (Original) The method of claim 1, wherein analyzing the data to determine a condition of the pipeline comprises correlating data collected from a first sensor upon encountering a physical condition in the pipeline and data collected from a second sensor upon encountering the same physical condition in the pipeline.
10. (Previously Presented) The method of claim 1, wherein analyzing the data to determine a condition of the pipeline comprises correlating two or more of frequency data, data representative of a position of the pipeline pig along the pipeline and a speed of travel of the pipeline pig along the pipeline.
11. (Original) The method of claim 1, wherein analyzing comprises processing the data to remove frequency responses resulting from the pig passing known structures in the pipeline.
12. (Previously Presented) The method of claim 11, wherein the known structures include joints and bends.
13. (Original) The method of claim 1, wherein analyzing comprises identifying one or more known patterns.
14. (Previously Presented) The method of claim 13, wherein identifying one or more known patterns comprises comparing the data to reference data to identify a signature represented by the reference data, wherein the signature represents a known condition.

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15. (Previously Presented) A method of deriving data representative of a condition of a pipeline comprising:

- passing a pipeline pig axially through a pipeline;
- using the axial motion of the pipeline pig to generate an interaction between the pipeline pig and an inner surface of the pipeline;
- sensing a frequency response generated in the pipeline pig by the interaction as the pipeline pig moves through the pipeline;
- generating data representative of the frequency response; and
- analyzing the data to give data representative of the condition of the pipeline.

16. (Original) The method of claim 15, wherein analyzing the data comprises analyzing a frequency range between about 75 Hz and 300 Hz.

17-30. (Canceled)

31. (Currently Amended) A method for deriving data representative of a condition of a pipeline comprising:

- passing a pipeline pig through the pipeline;
- interfering at least a portion of the pipeline pig with an inner surface of the pipeline; and
- sensing a vibration induced in the portion of the pipeline pig as the pipeline pig passes through the pipeline; and
- using the vibration to infer a condition of the pipeline.

32. (Cancelled)

33. (Currently Amended) The method of claim [[32]] 31, wherein using the vibration to infer a condition of the pipeline comprises correlating two or more of frequency data of the vibration, data representative of the pig position along the pipeline, and a traveling speed of the pig through the pipeline.

34. (Currently Amended) The method of claim ~~[[32]]~~ 31, wherein using the vibration to infer a condition of the pipeline comprises identifying a known condition by comprising data representative of the vibration to signature data representative of the known condition.
35. (Previously Presented) The method of claim 31, wherein sensing the vibration comprises sensing a vibration frequency.
36. (Previously Presented) The method of claim 31, wherein sensing the vibration comprises sensing a vibration signal amplitude.
37. (Previously Presented) The method of claim 31, wherein passing the pipeline pig comprises controlling a speed of the pipeline pig to within a suitable range to induced the vibration.
38. (New) The method of claim 1, wherein the data is indicative of inside surface roughness of the pipe.
39. (New) The method of claim 1, wherein the pipeline pig comprises an on-board data collection system comprising a processor, a memory, storage and a power supply.
40. (New) The method of claim 1, wherein the pipeline pig comprises one or more of the following sensors: a vibration sensor, a temperature sensor, pressure sensors and/or a gyroscope.
41. (New) The method of claim 15, wherein the pipeline pig comprises active sensing means capable of sensing debris without relying on any physical interaction between the pig itself and the debris.

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42. (New) The method of claim 1, wherein the seal diameter is greater than the internal diameter of the pipe line.

43. (New) The method of claim 16, wherein the analyzing comprises recognizing patterns within the frequency range.

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